

COPY

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF THE CITY OF)
EVANSVILLE, INDIANA, BY ITS WATER)
AND SEWER UTILITY BOARD, FOR)
AUTHORITY TO ISSUE BONDS, NOTES,)
OR OTHER OBLIGATIONS, FOR)
AUTHORITY TO INCREASE ITS RATES)
AND CHARGES FOR WATER SERVICE,)
AND FOR APPROVAL OF NEW)
SCHEDULES OF WATER RATES,)
CHARGES, AND RULES AND)
REGULATIONS FOR WATER SERVICE,)
AND FOR APPROVAL OF ACCOUNTING)
AND RATEMAKING TREATMENT FOR)
WATER SERVICE TO REFLECT THE)
IMPACT OF REASONABLY FIXED,)
KNOWN AND MEASURABLE CAPITAL)
REQUIREMENTS OVER THE NEXT)
THREE CALENDAR YEARS)

FILED

FEB 20 2007

**INDIANA UTILITY
REGULATORY COMMISSION**

CAUSE NO. 43190

DIRECT TESTIMONY OF CHRISTOPHER B. GALE, P.E.

February 20, 2007

On Behalf of Petitioner
City of Evansville, Indiana

1. Q. Please state your name, your employer, and your business address.

A. Christopher B. Gale. I am employed by HNTB Corporation. My business address is 111 Monument Circle, Suite 1200, Indianapolis, IN, 46204.

2. Q. What is your position with HNTB Corporation?

A. I am a Project Manager, and the Petitioner is one of my clients.

3. Q. What is the purpose of your testimony in this water rate proceeding?

A. The purpose of my testimony as a registered professional engineer on behalf of the Petitioner is to provide an engineering overview of the operation of its water system, provide information regarding historical and projected growth of its water system, present O&M cost estimates of the current system, and to describe recommended and required annual capital improvements with costs.

4. Q. Would you please describe HNTB's business?

A. HNTB is a consulting engineering firm based in Kansas City, Missouri. Our Indianapolis office has provided water and wastewater planning, engineering and construction services to utilities in Indiana since 1940 (from 1940 to 1978 as Henry B. Steeg and Associates). In Indianapolis, HNTB employs over 150 people who include licensed professional engineers, landscape architects and planners. Our environmental office

specializes in the planning, design and construction of drinking water treatment and distribution systems, wastewater collection and treatment systems, and water resources management.

5. Q. Please summarize your educational and professional qualifications and experience.

A. I received a bachelor of science degree in civil engineering from Purdue University in 1995. I am a registered professional engineer in the State of Indiana. I have worked as both a Project Engineer and Project Manager for HNTB since 1996. Prior to working with HNTB I worked for the Indiana Department of Environmental Management. Throughout my career I have specialized in drinking water treatment and distribution as well as wastewater collection and treatment. I have worked on a variety of drinking water and wastewater projects for over 20 communities, governmental entities and private utilities in Indiana.

6. Q. Are you familiar with the IURC Order issued February 18, 2004, in Petitioner's last water rate case bearing Cause No. 42176?

A. Yes.

7. Q. Did that IURC Order grant authority for Petitioner to issue bonds needed for its capital improvements then?

A. Yes.

8. Q. Have those capital improvements been completed and are they "used and useful?"

A. Not all of the projects were completed due to a significant increase in material pricing which impacted all of the proposed capital improvements.

The projects that were completed are being used and are useful to the treatment and distribution systems of Petitioner.

There are improvements that are still under construction using funds provided by the Commission authorized bonds which should be completed by the first quarter of 2008.

9. Q. Can you briefly describe how those completed improvements impacted Petitioner's water system?

A. Yes. They improved the system by: adding new mains, replacing existing mains with more reliable and/or larger mains and looping mains in some areas. Additional pumping capacity was also added to supply more water from the downtown area to the Northern Pressure Zone.

The Northern Pressure Zone is an area that has been experiencing considerable industrial, commercial and residential growth. Three of the Petitioner's four wholesale customers are also supplied from this zone. As a result of the completed projects, the Petitioner improved the ability to

provide adequate water storage and minimum water pressures throughout the pressure zone.

Water main extensions were completed in several areas of the system to provide water to customers that were previously not served, to improve water quality and to improve water pressure.

Pilot studies were completed at water treatment plant to determine the optimum filtration expansion and chemical feed improvements. The studies allowed the Petitioner to properly plan for and design improvements that are currently under construction to improve the treatment process.

The soon to be completed improvements/evaluations will improve chemical feed systems, low and high service pumping capabilities, flow metering, supervisory control and data acquisition (SCADA), and allow the Petitioner to meet ever increasing regulatory requirements.

10. Q. Please identify the attached document marked as Petitioner's Exhibit CG-1.

A. It is a copy of the Master Plan of Petitioner prepared in 2000. We are currently working on an update of the attached plan which will not be completed for a few months. Also attached as a part of Petitioner's Exhibit CG-2 are updates to a portion of the original 2000 cost estimates with the updates being done in 2007 primarily to reflect inflation. In

2002, HNTB also updated the cost estimates for capital improvements but did not prepare a complete update to the Master Plan.

11. Q. Did you assist in the development and preparation of that Plan and the 2007 cost updates?

A. Yes. Harry Lawson and Umbaugh were also involved with the updates.

12. Q. Please briefly describe how the Master Plan was developed and planned.

A. We examined Petitioner's historical operations, chronic problem areas, maintenance records and upcoming regulatory requirements, along with an evaluation of existing and future water demands from the system.

13. Q. Has that Master Plan been updated?

A. In 2002, portions of the Master Plan were updated and HNTB is currently working with the Petitioner to update the entire plan. I participated in the 2002 update, and I am currently working on the most recent update.

14. Q. Please describe the major changes being made in the Master Plan update.

A. The current Master Plan update is being conducted in coordination with the Petitioner's employees and HNTB. Updating the Water Master Plan includes the following major work efforts documenting the above activities and described as the "2006 Update":

- i. Identifying progress made since the 2000 Water and Sewer Master Plan and 10-Year Capital Plan;
- ii. Identifying existing and future system growth demands, upcoming continuously changing regulatory requirements and system deficiencies;
- iii. Identifying proposed projects from the 2000 Master Plan, 2004 Water Treatment Plant Pilot Study, and evaluating new projects that will address growth demands and system deficiencies;
- iv. Prioritizing and categorizing plant and system needs and associated projects;
- v. Developing and analyzing program and project alternatives; and,
- vi. Creating the associated geo-database for all of the projects.

15. Q. What are the purposes of these upgrades as described in your attached Petitioner's Exhibit CG-3?

A. The purpose of these upgrades is to continue to provide high quality water production, treatment, distribution and sales and service to Petitioner's customers both present and future as briefly described in the Exhibit. Maintaining a quality drinking water supply and staying in compliance with regulatory requirements requires the Petitioner to continually evaluate the treatment and distribution systems, and make the necessary

capital improvements. A few of the more significant capital

improvements that are listed in the Exhibit are as follows:

- i. Recondition North Plant flocculation tanks (baffles, mixers & sluice gates) and primary sedimentation basin sludge scrapers –
The north flocculation and sedimentation tanks have not been taken out of service for comprehensive rehabilitation since they were installed in the 1946. The project includes replacing and/or rehabilitating sluice gates, valves, and redwood baffles, replacing sludge scrapers, recoating drum assemblies and bridges, and replacement of walkways for maintenance and safety purposes. The estimated project cost is \$1,520,000.
- ii. Add 3rd set of South Plant primary and secondary basins – The sedimentation process is the limiting unit process in the overall plant capacity rating and expansion of this process is needed to meet increased future capacity requirements. The plant is rated as a 60 MGD facility; however, the firm capacity of the primary and secondary sedimentation process units is only 42 MGD. The project involves the addition of a third set of primary and secondary sedimentation basins for the South Plant. The estimated project cost is \$6,060,000.
- iii. Add Filters 35 and 36 (6-MGD conventional filter media) –
Filtration capacity is the second-most limiting factor in the

plant's overall capacity rating. The plant is currently rated as a 60 MGD facility; however, the firm filtration capacity is only 51 MGD. As demand continues to grow, it is critical to expand the filtration capacity to meet this demand. The most feasible alternative is to expand the 1999 filter addition with two more filters. It was designed to take advantage of the limited space still available on-site while minimizing the impact on surrounding facilities and infrastructure. The estimated project cost is \$3,590,000.

- iv. Elevated storage tank in Killian Pressure Zone – The Killian Pressure Zone continues to experience increasing demand due to growth and fire flow requirements. The zone currently has a single 500,000-gallon elevated storage tank, which provides storage for the area. The area needs additional storage to meet the increased demands, and without another tank in the area it is not possible to take the existing tank out of service for much needed maintenance. The project would provide an additional 1.0 million gallons of elevated storage. The estimated project cost is \$2,560,000.
- v. Veteran's Memorial Water Main replacement – There is an existing 48-inch water main that will be replaced by this project. The existing main is the main source of conveyance for getting

water to the east side of the service area. In January of 2004, the existing water main began leaking due to settling of joints and deflection of the main. While temporary repairs were being made it was determined that the entire main should be replaced due to incompetent subsurface bedding conditions and the likelihood of additional failures. The estimated project cost is \$2,098,000.

- vi. INDOT related water main replacements/relocations – The Indiana Department of Transportation (INDOT) is routinely making improvements to roadways within the Petitioner's service area. In many cases, the Petitioner has water mains located within the INDOT right-of-way that must be relocated before road improvements are made. Over the last several years, the Petitioner has been required to expend over \$1,000,000 per year on INDOT-required projects. Through 2008, the Petitioner will be required to complete for INDOT-required projects in excess of \$3,000,000.

16. Q. What are some specific advantages provided to Petitioner and its customers over the next three calendar years by the proposed capital improvement projects?

A. As a result of the proposed capital improvements, the Petitioner and its customers will be able to have improved water quality, meet increasing regulatory compliance and experience a more reliable water service. The projects listed in Exhibit CG-3 will allow the Petitioner to continue improving water quality, volume and pressure by eliminating dead-ends and replacing small diameter mains. There is currently a significant amount of 1- to 2-inch water mains providing water to customers in the older parts of the system that will be replaced.

Industrial users account for the largest water users and the Petitioner is working on replacing industrial meters and standardizing accounting practices to accurately monitor industry water use.

Large diameter water mains will be constructed to provide water to the pressure zones located to the east and west sides of the service territory.

Improvements made for INDOT-required projects will be made to improve water service, and allow for the completion roadway enhancements.

Improvements at the water treatment plant requiring residuals collection and treatment facilities will allow the Petitioner to come into compliance with their new National Pollutant Discharge Elimination System Permit.

Additional filtration and sedimentation will increase the plant's firm treatment capacities to the match the plant's rated capacity.

The capital improvements will improve the reliability of the treatment systems by making investment in all of the major components of the treatment and distribution system, including the pumping, electrical components, chemical feed, piping, storage, filtration, sedimentation and many other treatment components.

17. Q. Do you project that demand to continue to grow over the next three calendar years?
- A. Yes. Although demands within the Central Pressure Zone continue to stay fairly constant, growth continues to occur in the other pressure zones, causing demand to increase. The Killian and Lincoln pressure zones, which are located to the west and east of the Central Pressure Zone, respectively, continue to experience significant commercial and residential growth. The Northern Press Zone has experienced considerable industrial, commercial and residential expansion. The Petitioner has recently committed to provide an additional 1,500,000 gallons to an industrial park which is under development in the northeastern part of the Northern Pressure Zone. The extension of Interstate 69, and the resulting commercial, residential and industrial growth associated with that construction, will continue to increase demands in the northern service area.

18. Q. Based on the updating of the Master Plan and the current projected Customer growth of Petitioner along with stricter environmental requirements and various demands of governmental units and agencies requiring expenditures and construction by Petitioner over the next three calendar years, what capital improvements do you recommend through the year 2010 and what are their combined costs as currently estimated?
- A. Preparation of the master plan in 2000 and the current process of updating the plan has identified the projects that are necessary for the Petitioner to complete to stay in compliance of regulatory requirements and continue providing a reliable source of quality water to its customers. Capital improvements are required in the distribution system and at the water treatment plant. The improvements listed in Exhibit CG-3 will increase the firm capacity of the filtration and sedimentation processes of the treatment plant, provide residuals management to come into compliance of the Petitioner's new NPDES permit requirements, complete studies for implementing future improvements to provide optimum treatment, and to provide the necessary volume of water to meet the increasing demand in the Northern Pressure Zone and other outlying areas.
19. Q. How did you determine the required improvements necessary to the to the Petitioner's updated Master Plan?

A. To successfully implement that Plan, we determined the following: To meet existing and future system growth demands, upcoming regulatory requirements and plant/system deficiencies, several projects would be needed at the water treatment plant and within the distribution system. The projects were developed in coordination with the Petitioner's employees and HNTB after reviewing prior studies, reports, work order and operator concerns. Projects were ranked based on a variety of factors to determine the need and schedule for implementing the program. These factors included regulatory compliance, service area growth, rehabilitation needs, improvements of operability and ease of maintenance, lower operation costs and additional revenue generation, and were ranked by plant staff and HNTB based on their cumulative relative need and importance.

20. Q. Has a schedule been developed for the capital improvements indicating design, bidding and construction timeframes.

A. The project rankings, as shown on Petitioner's Exhibit CG-3, will be used to determine the project schedule. It is the intent of the Petitioner to complete projects with the highest priority first. However, as a result of other circumstances that may occur during the next three calendar years, the Petitioner may determine to modify the schedule. Preliminary

schedules for a few of the more significant capital improvements that are listed in the Exhibit are as follows:

- i. Design of the new elevated storage tank in the Killian Pressure Zone is expected to be completed by the first quarter of 2008 with an anticipated construction completion by the second quarter of 2009.
- ii. Design of the North Plant flocculation tanks (baffles, mixers & sluice gates) and primary sedimentation basin sludge scrapers reconditioning is expected to begin by the third quarter of 2008 with construction beginning by the second quarter of 2009.
- iii. Design of the 3rd set of primary and secondary sedimentation basins for the South Plant is scheduled to begin by the last quarter of 2007 with construction beginning by the third quarter of 2008.
- iv. The Veterans Memorial Water Main Replacement project has already been designed and is awaiting funding. The project will be bid once bonds are issued.
- v. The completion of the INDOT-required projects is dependent upon INDOT's construction schedule. Water main improvements are required to be complete prior to the start of the roadway projects. Therefore, design of the water main improvements will begin in 2007.

21. Q. Have you performed or reviewed engineering estimates of the costs of the capital improvement projects recommended over the next three calendar years?
- A. Yes, we have prepared estimates for the majority of the projects and attached as Petitioner's Exhibit CG-3 is a summary of those Costs which will be "trued up" as the projects are designed, bid and completed.
22. Q. Have you reviewed the accounting and financial testimony of Gerald Malone of Umbaugh, and if so, do you agree with his numbers and testimony?
- A. Yes, and I agree with his testimony.
23. Q. Do you also agree with the financing proposal of Mister Malone for funding Petitioner's needed capital improvements over the next three calendar years?
- A. Yes. I agree that the issuance of the recommended bonds in the recommended amount is economical and appropriate.
24. Q. In your work for Petitioner have you gained familiarity and knowledge of its water system including its plant, equipment, and facilities?

A. Yes. HNTB has been the primary consultant for the water plant over the last 10 years.

25. Q. Do you have an opinion regarding the condition of those?

a. Yes.

26. Q. What is your opinion?

A. It is my opinion that Petitioner's water system, plant, equipment and facilities are in generally good condition; however, replacement, rehabilitation, upgrades and improvements are needed within the next three years to assure continued reliable operations. Some portions of Petitioner's water system, plant and facilities were built in the late 1880s and as other witnesses describe in more detail, urgently require attention. These improvements are identified and included in the capital improvement projects recommended by Petitioner, and for which it seeks financing and rate authority in this proceeding. It is also my opinion that the water system is presently used and useful in providing service to the public.

27. Q. Does this complete your direct pre-filed testimony?

A. Yes.